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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,105	03/12/2001	Mitsuyuki Fujibayashi	1272.C0451	6436

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EXAMINER

MOUTTET, BLAISE L

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 05/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,105

Applicant(s)

FUJIBAYASHI ET AL.

Examiner

Blaise L Mouttet

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. The objections to the drawings contained in the prior office action are withdrawn due to applicant's amendment.

Claim Objections

2. The objections to the claims contained in the prior office action are withdrawn due to applicant's amendment.

Claim Rejections - 35 USC § 112

3. The 112 rejections to the claims contained in the prior action are withdrawn due to applicant's amendment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 4 and 7-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Beauchamp et al. US 5,448,269.

Beauchamp et al. discloses, regarding claims 1 and 11, a printing apparatus and method for printing an image on a printing medium (40) while relatively moving printing

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heads (102, 104, 106, 108), each provided with an array of a plurality of printing elements (the nozzle arrays shown in figure 16), and the printing medium (30) comprising:

a carriage (100) mounting said printing heads (102, 104, 106, 108) and movable relative to the printing medium (30) in a scanning direction crossing said plurality of printing elements as shown in figure 1;

detection means (200) mounted on said carriage (100) for detecting printing positions of an array of printed pixels corresponding to said array of said plurality of printing elements (column 5, lines 30-40);

control means (the processor on circuit board 170 as disclosed in column 5, lines 37-40) for controlling drive timing of said plurality of printing elements according to detection results of said detection means (200) so as to make printing positions of subsequently printed pixels close to a predetermined center position (the ideal position as shown in figure 17 and described in column 8, lines 30-58).

Regarding claim 3, the printing heads (102, 104, 106, 108) are detachably mounted as indicated by column 5, lines 5-7 and the detection means (200) is fixedly mounted to the carriage (100) as shown in figure 2.

Regarding claim 4, the carriage (100) is moved by motor (112) and the printing medium (30) is moved by media positioning system (150) as shown in figures 2 and 3.

Regarding claim 7, see figure 2 and column 8, lines 30-58.

Regarding claim 8, see figure 7 in which LEDs (232, 234) are the light source and photodetector (240) is the photoelectric conversion device.

Regarding claims 9 and 10, see column 1, lines 22-30.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beauchamp et al. US 5,448,269 in view of Askren US 6,350,004.

Beauchamp et al. fails to disclose that the drive timing of the plurality of inkjet print elements is controlled to make deviation amounts equal to or less than one pixel although Beauchamp et al. clearly indicates a desire to minimize deviation between the swaths printed by the print elements as shown in figure 17.

Askren teaches adjusting the drive timing of a plurality of inkjet print elements to make deviation amounts equal to or less than one pixel between swaths and to position the pixels close to a predetermined center line (see figures 5-7 and column 2, lines 50-59).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to adjust the drive timing of the plurality of inkjet print elements disclosed by Beauchamp to make deviation amounts equal to or less than one pixel as taught by Askren.

The motivation for doing so would have been to reduce misalignment between the printed swaths of Beauchamp et al. to an amount imperceptible to the human eye as taught by column 2, lines 50-59 of Askren.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beauchamp et al. US 5,448,269 in view of Perner US 6,227,644.

Beauchamp et al. fails to disclose that the detection means has a plurality of detection elements arranged at predetermined positions of the carriage so as to be arranged along a specified direction crossing the scanning direction.

Perner discloses detection means (15) that have a plurality of detection elements (16) arranged at predetermined positions of the carriage so as to be arranged along a specified direction crossing the scanning direction as shown in figure 1.

It would have been obvious to a person of ordinary skill at the time of the invention to utilize the detection means discloses by Perner as the detection means of Beauchamp et al.

The motivation for doing so would have been in order to increase precision of the detection of ink drops as taught by column 3, lines 20-29 of Perner.

Response to Arguments

7. Applicant's arguments filed May 6, 2002 have been fully considered but they are not fully persuasive.

The applicant has made numerous amendments to the claims and the applicant has argued that the new limitation of making printing positions of subsequently printed pixels close to a predetermined center position was not disclosed by Khormaei, Perner or Beauchamp et al. as utilized in the 35 USC 102 rejections contained in the prior office action.

While correct with regard to Khormaei and Perner, to which the examiner has withdrawn the 35 USC 102 rejections of the prior office action, the applicant is incorrect in stating that Beauchamp et al. fails to meet this limitation. The applicant's attention is directed to figure 17 and column 8, lines 30-58 of Beauchamp et al. as explained by the examiner in the rejection contained herein.

Askren has been combined with Beauchamp et al. to establish the obviousness of the new limitations contained in claim 2 and Perner has now been combined with Beauchamp et al. to establish the obviousness of claim 5 as explained by the examiner in the rejection contained herein.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet whose telephone number is (703) 305-3007. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow, Jr. Art Unit 2853, can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet May 23, 2002

Bm 5/23/2002


John Barlow
Supervisory Patent Examiner
Technology Center 2800